Sequence Listing

SEQ ID		
1	rat OGFr cDNA	
2	rat OGFr protein	
3	rat OGFr cDNA partial (clone 14)	
4	human OGFr cDNA (Provisional)	
5	human OGFr splice version 8, cDNA	
6	human OGFr splice version 8, protein	
7	human OGFr splice version 1, cDNA	
8	human OGFr splice version 1, protein	
9	human OGFr splice version 4, cDNA	
10	human OGFr splice version 4, protein	
11	human OGFr splice version 7, cDNA	
12	human OGFr splice version 7, protein	
13	human OGFr splice version 127, cDNA	
14	human OGFr splice version 127, protein	
15	rat OGFr antisense	5'-GACTCAGGGACTTAGCTTCATCC-3'
16	scrambled	5'-ATAGATACTACGCCGGCTGTCCT-3'
17	human OGFr antisense	5'-GGTCGTCCATGCTCGGCTAGAAT-3'
18	scrambled	5'-GTGCAGTGCAATGCTCTCCGTGA-3'

SEQ ID NO: 1 -- Rat Opioid Growth Factor Receptor cDNA sequence

```
TGGGCTCAGCCACGCCCCAGGGTGCCCCCAGTGGGACTAGTTCTTCATTCTGGCAGCTGCACACATCTGTCAGTGAGGGAATGTCAGGTC   90
TCTCACTCTCCTCTCCTCACTATCCTTTCCGCAGAAAGCGGGTCCTCCTGCTTGTCGAGTATGGACGACCCGGACTGCGATTCCACCTGG  180
GAGGAGGAGAGCGAGGAGGATGGCGAGGATGGCCAGGCGGATGATACGACCGATGAGGACACGGGCGACGATGACGGCGACGCGGAGGAG  270
GCACGGCCAAGCCTGTTCCAGTCCAGGATGACAGGGTACCGAAACTGGCGTGCTATGCAGGACATGCAAAGATACCGGCACAACTACCCG  360
GATTTGACAGATCAAGACTGCAATGGTGACATGTGCAACCTGAGCTTCTACAAAAATGAGATCTGCTTCCAGCCAAATGGGGCTCTCATC  450
GAGGACATTCTTCAGAACTGGAAAGACAACTATGACCTCCTGGAAGAGAATCACTCCTACATCCAGTGGCTGTTTCCTCTGCGGGAACCA  540
GGAGTGAACTGGCACGCCAAGCCCCTCACCCTGAAGGAGGTTGAGGCATTTAAAAGCTCCAAGGAAGTCAGAGAGCGTCTTGTCCGGGCC  630
TATGAGCTCATGCTGGGCTTCTATGGGTTCCACCTTGAGGACCGGGGCACGGGTGCTGTATGCCGTGCACAGAACTTCCAGCCGCGCTTC  720
CACAATCTGAACAGCCACAGCCAGAACAACCTGCGTATTACACGCATCCTCAAGTCACTGGGTGAGCTGGGCTTAGAACACTACCAGGCA  810
CCCCTGGTCCGCTTCTTCCTGGAGGAGACCCTTGTACAGCACAAACTGCCCAGCGTGCGCCAGAGTGCCCTGGACTACTTCCTGTTCGCT  900
GTGCGCTGCCGGCACCAGCGCCGGGAGCTTGTGTACTTTGCCTGGGAGCACTTCAAGCCTCGCCGAGAGTTTGTCTGGGGGCCCCGTGAC  990
AAGCTGCGGAGATTCAAGCCCCAGACCATACCCCAGCCACTGACGGGACCAGGGCAGGCAGATAAAGATGAGGGCTCCAGGGACCCCTCC 1080
CAAGAGGCTGGCACCCAGGGTCGGACCTGTGGATCTGGAAGGGACCTGAGTGGGGACAGTGGAACAGCTGAGGATCCCTCACTGCTGAAC 1170
ACAAAGCCCTCAGATGGGGGAACCTTGGATGGGAACCAGAGGGATGAAGCTAAGTCCCTGAGTCCCAAGGAGAGCAAGAAAAGGAAGTTG 1260
GAGGGGAACAGGCAGGAGCAGGTCCCAGGGGAGGCAGATCCCCAGGGTGTCTCTGAGGTAGAGAAAATTGCCCTTAACCTTGAGGAGTGT 1350
GCCCTTAGCCCTATCAGCCAGGAGCCCAGGGAGGCTGAACCGCCCTGTCCTGTGGCCAGGGTGGCTAATGAGGTAAGAAAGCGGAGGAAG 1440
GTGGAGGAAGGGGCTGAGGGTGATGGAGTAGTCAGTAACACTCAAATGCAGGCCAGTGCCCTGCCTCCTACCCCTTCAGAGTGTCCTGAG 1530
GCCCAAAAGGATGGGAATGGGCCAGAGGACTCAAACAGCCAGGTTGGGGCAGAGGATTCCAAAAGCCAGGTGGGGCCGGAGGATCCAAAC 1620
AGCCAGGTGGGGCTGGAGGACCCAAACAGCCAGGTCGGGCCAGAGGACCCAAACAGCCAGGTCGGGCCAGAGGACCCAAACAGCCAGGTC 1710
GGGCCAGAGGACCCAAACAGCCAGGTCGGGCCAGAGGACCCAAACAGCCAGGTGGTGGGGCCAGAGCAAGCTGCCTCTAAGAGCCCTGTG 1800
GAGGACCCTGACTCTGACACTATGGGAACCTCAGTGGATGAGTCAGAGGAGTTGGCAAGGATTGAGGCCTCTGCTGAACCCCCAAAGCCT 1890
TAGAGGTGCATCTCAGTCCTACTCAGCCCACTGCAGGGGGTTTCTGAGTCCAGAGCTCTGCCGTAGGCTCTTCTTGGTGCCCCACAGTGC 1980
TGGCCTCTCCCTAGTGGTCACTGAGGTGGCCACCAGAGGGACTGAGGCCCTGCCCTCAGGGAAGGCCAAGGCCTTCAGAACCCTCCTTAC 2070
CTCACTGTGTCCTCCTCCACTGCCCTCTGAGCCCTGCGTTGTGATCAGACCCTAAGGGTCTAGAGGGAGGGGCCTCTTCATTAGTCTGGT 2160
GCCAAGTGAGGCCTTTTCTGAATAAACTCTTTAGACTTTGTCAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA 2250
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Initiator AUG at 151-153

Terminator TAG at 1891-1983

Open reading frame 151 (AUGGACGAC...) to 1890 (... AAGCCT)

SEQ ID NO:2 -- Rat Opioid Growth Factor Receptor

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   1  MDDPDCDSTW EEESEEDGED GQADDTTDED TGDDDGDAEE ARPSLFQSRM
  51  TGYRNWRAMQ DMQRYRHNYP DLTDQDCNGD MCNLSFYKNE ICFQPNGALI
 101  EDILQNWKDN YDLLEENHSY IQWLFPLREP GVNWHAKPLT LKEVEAFKSS
 151  KEVRERLVRA YELMLGFYGF HLEDRGTGAV CRAQNFQPRF HNLNSHSHNN
 201  LRITRILKSL GELGLEHYQA PLVRFFLEET LVQHKLPSVR QSALDYFLFA
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 251  VRCRHQRREL VYFAWEHFKP RREFVWGPRD KLRRFKPQTI PQPLTGPGQA
 301  DKDEGSRDPS QEAGTQGRTC GSGRDLSGDS GTAEDPSLLN TKPSDGGTLD
 351  GNQRDEAKSL SPKESKKRKL EGNRQEQVPG EADPQGVSEV EKIALNLEEC
 401  ALSPISQEPR EAEPPCPVAR VANEVRKRRK VEEGAEGDGV VSNTQMQASA
 451  LPPTPSECPE AQKDGNGPED SNSQVGAEDS KSQVGPEDPN SQVGLEDPNS
 501  QVGPEDPNSQ VGPEDPNSQV GPEDPNSQVG PEDPNSQVVG PEQAASKSPV
 551  EDPDSDTMGT SVDESEELAR IEASAEPPKP
```

SEQ ID NO:3 -- Rat OGFr, partial cDNA sequence, clone 14

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   1  CATTGGGCCG ACGTCGCATG CTCCTCTAGA CTCGAGGAAT TCGGGCCCCA
  51  GGGTGTCTCT GAGGTAGAGA AAATTGCCCT TAACCTTGAG GAGTGTGCCC
 101  TTAGCCCTAT CAGCCAGGAG CCCAGGGAGG STGAACCGCC CTGTCCTGTG
 151  GCCAGGGTGG CTANAATGAG GTAAGAAANG CGGNAGGAAG GTGGAGGAAG
 201  GGGCTGAGGG TGNATGGAGT AGTCAGTAAC ACTYAAATGN CAGGCCAGTG
 251  CCCTGCCTCC TACCCCTTCA GAGTGTCCTG AGGCCCAAAA GGATGGGAAT
 301  GGGCCAGAGG ACTCAAACAG CCAGGTTGGG GCAGAGGATT CCAAAAGCCA
 351  GGTGGGGCCG GAGGATCCAA ACAGCCAGGT GGGGCTGGAG GACCCAAACA
 401  GCCAGGTCGG GCCAGAGGAC CCAAACAGCC AGGTCGGGCC AGAGGACCCA
 451  AACAGCCAGG TCGGGCCAGA GGACCCAAAC AGCCAGGTCG GGCCAGAGGA
 501  CCCAAACAGC CAGGTGGTGG GGCCAGAGCA AGCTGCCTCT AAGAGCCCTG
 551  TGGANGGACC CTGACTCTGA CACTATGGGA ACCTCAGTGG ATGAGTCAGA
 601  GGAGTTGGCA AGGATTGAGG CNTYTGCTGA ACCCCCAAAG CCTTAGAGGT
 651  GCATTTCAGT CCTACTCAGC CCACTGCAGG GGGTTTCTGA GTCCAGAGCT
 701  CTGCCGTAGG CTCTTCTTGG TGCCCCACAG TGCTGGCCTC TCCCTASTGG
 751  TCACTGAGGT GGCCACCAGA GGGACTGAGG CCCTGCCCTC AGGGAAGGCC
 801  AAGGCCTTCA GAACCCTCCT TACCTCACTG TGTCCTCCTC CACTGCCCTC
 851  TGAGCCCTGC GTTGTGATCA GACCCTAAGG GTCTAGAGGG AGGGGCCTCT
 901  TCATTAGTCT GGTGCCAAGT GAGGCCTTTT CTGAATAAAC TCTTTAGACT
 951  TTGTCAAAAA AAAAAAAAAA AAAAAAAAAA AAAAAAA
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SEQ ID NO:4 -- Human OGF receptor cDNA; spliced form A

Length: 2290

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   1 TAGAATTCAG CGGCCGCTGA ATTCTAGCCG AGCATGGACG ACCCCGACTG
  51 CGACTCCACC TGGGAGGAGG ACGAGGAGGA TGCGGAGGAC GCGGAGGACG
 101 AGGACTGCGA GGACGGCGAG GCCGCCGGCG CGAGGGACGC GGACGCAGGG
 151 GACGAGGACG AGGAGTCGGA GGAGCCGCGG GCGGCGCGGC CCAGCTCGTT
 201 CCAGTCCAGA ATGACAGGGT CCAGAAACTG GCGAGCCACG AGGGACATGT
 251 GTAGGTATCG GCACAACTAT CCGGATCTGG TGGAACGAGA CTGCAATGGG
 301 GACACGCCAA ACCTGAGTTT CTACAGAAAT GAGATCCGCT TCCTGCCCAA
 351 CGGCTGTTTC ATTGAGGACA TTCTTCAGAA CTGGACGGAC AACTATGACC
 401 TCCTTGAGGA CAATCACTCC TACATCCAGT GGCTGTTTCC TCTGCGAGAA
 451 CCAGGAGTGA ACTGGCATGC CAAGCCCCTC ACGCTCAGGG AGGTCGAGGT
 501 GTTTAAAAGC TCCCAGGAGA TCCAGGAGCG GCTTGTCCGG GCCTACGAGC
 551 TCATGCTGGG CTTCTACGGG ATCCGGCTGG AGGACCGAGG CACGGGCACG
 601 GTGGGCCGAG CACAGAAGTA CCAGAAGCGC TTCCAGAACC TGAACTGGCG
 651 CAGCCACAAC AACCTCCGCA TCACACGCAT CCTCAAGTCG CCGTGTGAGC
 701 TGAGCCTCGA GCACTTCCAG GCGCCACTGG TCCGCTTCTT CCTGGAGGAG
 751 ACGCTGGTGC GGCGGGAGCT GCCGGGGGTG CGGCAGAGTG CCCTGGACTA
 801 CTTCATGTTC GCCGTGCGCT GCCGACACCA GCGCCGCCAG CTGGTGCACT
 851 TCGCCTGGGA GCACTTCCGG CCCCGCTGCA AGTTCGTCTG GGGGCCCCAA
 901 GACAAGCTGC GGAGGTTCAA GCCCAGCTCT CTGCCCCATC CGCTCGAGGG
 951 CTCCAGGAAG GTGGAGGAGG AAGGAAGCCC CGGGGACCCC GACCACGAGG
1001 CCAGCACCCA GGGTCGGACC TGTGGGCCAG AGCATAGCAA GGGTGGGGGC
1051 AGGGTGGACG AGGGGCCCCA GCCACGGAGC GTGGAGCCCC AGGATGCGGG
1101 ACCCCTGGAG AGGAGCCAGG GGGATGAGGC AGGGGGCCAC GGGGAAGATA
1151 GGCCGGAGCC CTTAAGCCCC AAAGAGAGCA AGAAGAGGAA GCTGGAGCTG
1201 AGCCGGCGGG AGCAGCCGCC CACAGAGCCA GGCCCTCAGA GTGCCTCAGA
1251 GGTGGAGAAG ATCGCTCTGA ATTTGGAGGG GTGTGCCCTC AGCCAGGGCA
1301 GCCTCAGGAC GGGGACCCAG GAAGTGGGCG GTCAGGACCC TGGGGAGGCA
1351 GTGCAGCCCT GCCGCCAACC CCTGGGAGCC AGGGTGGCCG ACAAGGTGAG
1401 GAAGCGGAGG AAGGTGGATG AGGGTGCTGG GGACAGTGCT GCGGTGGCCA
1451 GTGGTGGTGC CCAGACCTTG GCCCTTGCCG GGTCCCCTGC CCCATCGGGG
1501 CACCCCAAGG CTGGACACAG TGAGAACGGG GTTGAGGAGG ACACAGAAGG
1551 TCGAACGGGG CCCAAAGAAG GTACCCCTGG GAGCCCATCG GAGACCCCAG
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1601 GCCCCAGCCC AGCAGGACCT GCAGGGGACG AGCCAGCCGA GAGCCCATCG
1651 GAGACCCCAG GCCCCCGCCC GGCAGGACCT GCAGGGGACG AGCCAGCCGA
1701 GAGCCCATCG GAGACCCCAG GCCCCAGCCC GGCAGGACCT ACAAGGGATG
1751 AGCCAGCCGA GAGCCCATCG GAGACCCCAG GCCCCCGCCC GGCAGGACCT
1801 GCAGGGGACG AGCCAGCCGA GAGCCCATCG GAGACCCCAG GCCCCCGCCC
1851 GGCAGGACCT GCAGGGGACG AGCCAGCCGA GAGCCCATCG GAGACCCCAG
1901 GCCCCAGCCC GGCAGGACCT ACAAGGGATG AGCCAGCCAA GGCGGGGGAG
1951 GCAGCAGAGT TGCAGKACGC AGAGGTGGAG TCTTCTGCCA AGTCTGGGAA
2001 GCCTTAAGGA AAGGAGTGCC CGTCGGCGTC TTGGTCCTCC TGTCCCTGCT
2051 GCAGGGGCTG GGGCCTCCGG AGCTTGCTGC GGGCTCCCCT CAGGCTCTGC
2101 TTCGTGACCC GTGACCCATG ACCCACAGTG CTGGCCTCCT GTGGGGCCAC
2151 TATAGCARSC ACCAGAAGCC GCGAGGCCCT CAGGGAAGCC CAAGGCCTGC
2201 AGAAGCCTCC TGGCCTGGCT GTGTCTTCCC CACCCAGCTC TCCCCTGCGC
2251 CCCTGTCTTT GTAAATTGAC CCTTCTGGAG TGGGGGGCGG

Letter"S", "R", or "K" was used in positions where there was a 50-50 split on the consensus sequences. S = C or G; R = A or G; K = T or G.
Inititator AUG 34-36
Terminator TAA 2005-2007
Open reading frame: 34 (AUGGACGAC...) to 2004 (...GGGAAGCCT)

SEQ ID NO: 5 -- Human Opioid Growth Factor Receptor cDNA, spliced version 8

1 TAGAATTCAG CGGCCGCTGA ATTCTAGCCG AGCATGGACG ACCCCGACTG
51 CGACTCCACC TGGGAGGAGG ACGAGGAGGA TGCGGAGGAC GCGGAGGACG
101 AGGACTGCGA GGACGGCGAG GCCGCCGGCG CGAGGGACGC GGACGCAGGG
151 GACGAGGACG AGGAGTCGGA GGAGCCGCGG GCGGCGCGGC CCAGCTCGTT
201 CCAGTCCAGA ATGACAGGGT CCAGAAACTG GCGAGCCACG AGGGACATGT
251 GTAGGTATCG GCACAACTAT CCGGATCTGG TGGAACGAGA CTGCAATGGG
301 GACACGCCAA ACCTGAGTTT CTACAGAAAT GAGATCCGCT TCCTGCCCAA
351 CGGCTGTTTC ATTGAGGACA TTCTTCAGAA CTGGACGGAC AACTATGACC

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401  TCCTTGAGGA CAATCACTCC TACATCCAGT GGCTGTTTCC TCTGCGAGAA
451  CCAGGAGTGA ACTGGCATGC CAAGCCCCTC ACGCTCAGGG AGGTCGAGGT
501  GTTTAAAAGC TCCCAGGAGA TCCAGGAGCG GCTTGTCCGG GCCTACGAGC
551  TCATGCTGGG CTTCTACGGG ATCCGGCTGG AGGACCGAGG CACGGGCACG
601  GTGGGCCGAG CACAGAACTA CCAGAAGCGC TTCCAGAACC TGAACTGGCG
651  CAGCCACAAC AACCTCCGCA TCACACGCAT CCTCAAGTCG CCGTGTGAGC
701  TGAGCCTCGA GCACTTCCAG GCGCCACTGG TCCGCTTCTT CCTGGAGGAG
751  ACGCTGGTGC GGCGGGAGCT GCCGGGGGTG CGGCAGAGTG CCCTGGACTA
801  CTTCATGTTC GCCGTGCGCT GCCGACACCA GCGCCGCCAG CTGGTGCACT
851  TCGCCTGGGA GCACTTCCGG CCCCGCTGCA AGTTCGTCTG GGGGCCCCAA
901  GACAAGCTGC GGAGGTTCAA GCCCAGCTCT CTGCCGCATC CGCTCGAGGG
951  CTCCAGGAAG GTGGAGGAGG AAGGAAGCCC CGGGGACCCC GACCACGAGG
1001 CCAGCACCCA GGGTCGGACC TGTGAGCCAG AGCATAGCAA GGGTGGGGGC
1051 AGGGTGGACG AGGGGCCCCA GCCACGGAGC GTGGAGCCCC AGGATGCGGG
1101 ACCCCTGGAG AGGAGCCAGG GGGATGAGGC AGGGGGCCAC GGGGAAGATA
1151 GGCCGGAGCC CTTAAGCCCC AAAGAGAGCA AGAAGAGGAA GCTGGAGCTG
1201 AGCCGGCGGG AGCAGCCGCC CACAGGGCCA GGCCCTCAGA GTGCCTCAGA
1251 GGTGGAGAAG ATCGCTCTGA ATTTGGAGGG GTGTGCCCTC AGCCAGGGCA
1301 GCCTCAGGAC GGGGACCCAG GAAGTGGGCG GTCAGGACCC TGGGGAGGCA
1351 GTGCAGCCCT GCCGCCAACC CCTGGGAGCC AGGGTGGCCG ACAAGGTGAG
1401 GAAGCGGAGG AAGGTGGATG AGGGTACTGG GGACAGTGCT GCGGTGGCCA
1451 GTGGTGGTGC CCAGACCTTG GCCCTTGCCG GGTCCCCTGC CCCATCGGGG
1501 CACCCCAAGG CTGGACACAG TGAGAACGGG GTTGAGGAGG ACACAGAAGG
1551 TCGAACGGGG CCCAAAGAAG GTACCCCTGG GAGCCCATCG GAGACCCCAG
1601 GCCCCAGCCC AGCAGGACCT GCAGGGGACG AGCCAGCCAA GACCCCATCG
1651 GAGACCCCAG GCCCCAGCCC GGCAGGACCT ACAAGGGATG AGCCAGCCGA
1701 GAGCCCATCG GAGACCCCAG GCCCCCGCCC GGCAGGACCT GCAGGGGACG
1751 AGCCAGCCGA GAGCCCATCG GAGACCCCAG GCCCCCGCCC GGCAGGACCT
1801 GCAGGGGACG AGCCAGCCAA GATCCCATCG GAGACCCCAG GCCCCAGCCC
1851 GGCAGGACCT ACAAGGGATG AGCCAGCCGA GAGCCCATCG GAGACCCCAG
1901 GCCCCCGCCC GGCAGGACCT GCAGGGGACG AGCCAGCCGA GAGCCCATCG
1951 GAGACCCCAG GCCCCCGCCC GGCAGGACCT GCAGGGGACG AGCCAGCCGA
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2001  GAGCCCATCG GAGACCCCAG GCCCCAGCCC GGCAGGACCT ACAAGGGATG
2051  AGCCAGCCAA GGCGGGGGAG GCAGCAGAGT TGCAGGACGC AGAGGTGGAG
2101  TCTTCTGCCA AGTCTGGGAA GCCTTAAGGA AAGGAGTGCC CGTCGGCGTC
2151  TTGGTCCTCC TGTCCCTGCT GCAGGGGCTG GGGCCTCCGG AGCTGCTGCG
2201  GGCTCCCCTC AGGCTCTGCT TCGTGACCCG TGACCCATGA CCCACAGTGC
2251  TGGCCTCCTG TGGGGCCACT ATAGCAGCCA CCAGAAGCCG CGAGGCCCTC
2301  AGGGAAGCCC AAGGCCTGCA GAAGCCTCCT GGCCTGGCTG TGTCTTCCCC
2351  ACCCAGCTCT CCCCTGCGCC CCTGTCTTTG TAAATTGACC CTTCTGGAGT
2401  GGGGGGCG
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SEQ ID NO: 6 -- Human Opioid Growth Factor Receptor protein, from spliced cDNA version 8

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MDDPDCDSTWEEDEEDAEDAEDEDCEDGEAAGARDADAGDEDEESEEPRAARPSSFQSRM   60
TGSRNWRATRDMCRYRHNYPDLVERDCNGDTPNLSFYRNEIRFLPNGCFIEDILQNWTDN  120
YDLLEDNHSYIQWLFPLREPGVNWHAKPLTLREVEVFKSSQEIQERLVRAYELMLGFYGI  180
RLEDRGTGTVGRAQNYQKRFQNLNWRSHNNLRITRILKSPCELSLEHFQAPLVRFFLEET  240
LVRRELPGVRQSALDYFMFAVRCRHQRRQLVHFAWEHFRPRCKFVWGPQDKLRRFKPSSL  300
PHPLEGSRKVEEEGSPGDPDHEASTQGRTGEPEHSKGGGRVDEGPQPRSVEPQDAGPLER  360
SQGDEAGGHGEDRPEPLSPKESKKRKLELSRREQPPTGPGPQSASEVEKIALNLEGCALS  420
QGSLRTGTQEVGGQDPGEAVQPCRQPLGARVADKVRKRRKVDEGTGDSAAVASGGAQTLA  480
LAGSPAPSGHPKAGHSENGVEEDTEGRTGPKEGTPGSPSETPGPSPAGPAGDEPAKTPSE  540
TPGPSPAGPTRDEPAESPSETPGPRPAGPAGDEPAESPSETPGPRPAGPAGDEPAKIPSE  600
TPGPSPAGPTRDEPAESPSETPGPRPAGPAGDEPAESPSETPGPRPAGPAGDEPAESPSE  660
TPGPSPAGPTRDEPAKAGEAAELQDAEVESSAKSGKP                          697
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SEQ ID NO: 7 -- Human OGFr cDNA, spliced version 1

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   1  TAGAATTCAG CGGCCGCTGA ATTCTAGCCG AGCATGGACG ACCCCGACTG
  51  CGACTCCACC TGGGAGGAGG ACGAGGAGGA TGCGGAGGAC GCGGAGGACG
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101  AGGACTGCGA GGACGGCGAG GCCGCCGGCG CGAGGGACGC GGACGCAGGG
151  GACGAGGACG AGGAGTCGGA GGAGCCGCGG GCGGCGCGGC CCAGCTCGTT
201  CCAGTCCAGA ATGACAGGGT CCAGAAACTG GCGAGCCACG AGGGACATGT
251  GTAGGTATCG GCACAACTAT CCGGATCTGG TGGAACGAGA CTGCAATGGG
301  GACACGCCAA ACCTGAGTTT CTACAGAAAT GAGATCCGCT TCCTGCCCAA
351  CGGCTGTTTC ATTGAGGACA TTCTTCAGAA CTGGACGGAC AACTATGACC
401  TCCTTGAGGA CAATCACTCC TACATCCAGT GGCTGTTTCC TCTGCGAGAA
451  CCAGGAGTGA ACTGGCATGC CAAGCCCCTC ACGCTCAGGG AGGTCGAGGT
501  GTTTAAAAGC TCCCAGGAGA TCCAGGAGCG GCTTGTCCGG GCCTACGAGC
551  TCATGCTGGG CTTCTACGGG ATCCGGCTGG AGGACCGAGG CACGGGCACG
601  GTGGGCCGAG CACAGAACTA CCAGAAGCGC TTCCAGAACC TGAACTGGCG
651  CAGCCACAAC AACCTCCGCA TCACACGCAT CCTCAAGTCG CCGTGTGAGC
701  TGAGCCTCGA GCACTTCCAG GCGCCACTGG TCCGCTTCTT CCTGGAGGAG
751  ACGCTGGTGC GGCGGGAGCT GCCGGGGGTG CGGCAGAGTG CCCTGGACTA
801  CTTCATGTTC GCCGTGCGCT GCCGACACCA GCGCCGCCAG CTGGTGCACT
851  TCGCCTGGGA GCACTTCCGG CCCCGCTGCA AGTTCGTCTG GGGGCCCCAA
901  GACAAGCTGC GGAGGTTCAA GCCCAGCTCT CTGCCGCATC CGCTCGAGGG
951  CTCCAGGAAG GTGGAGGAGG AAGGAAGCCC CGGGGACCCC GACCACGAGG
1001 CCAGCACCCA GGGTCGGACC TGTGGGCCAG AGCATAGCAA GGGTGGGGGC
1051 AGGGTGGACG AGGGGCCCCA GCCACGGAGC GTGGAGCCCC AGGATGCGGG
1101 ACCCCTGGAG AGGAGCCAGG GGGATGAGGC AGGGGGCCAC GGGGAAGATA
1151 GGCCGGAGCC CTTAAGCCCC AAAGAGAGCA AGAAGAGGAA GCTGGAGCTG
1201 AGCCGGCGGG AGCAGCCGCC CACAGAGCCA GGCCCTCAGA GTGCCTCAGA
1251 GGTGGAGAAG ATCGCTCTGA ATTTGGAGGG GTGTGCCCTC AGCCAGGGCA
1301 GCCTCAGGAC GGGGACCCAG GAAGTGGGCG GTCAGGACCC TGGGGAGGCC
1351 TCCTGTCCCT GCTGCAGGGG CTGGGGCCTC CGGAGCTGCT GCGGGCTCCC
1401 CTCAGGCTCT GCTTCGTGAC CCGTGACCCA TGACCCACAG TGCTGGCCTC
1451 CTGTGGGGCC ACTATAGCAG CCACCAGAAG CCGCGAGGCC CTCAGGGAAG
1501 CCCAAGGCCT GCAGGAGCCT CCTGGCCTGG CTGTGTCTTC CCCACCCAGC
1551 TCTCCCCTGC GCCCCTGTCT TTGTAAATTG ACCCTTCTGG AGTGGGGGGC
1601 G
```

SEQ ID NO: 8 -- Human Opioid Growth Factor Receptor protein, from spliced cDNA version 1

```
MDDPDCDSTWEEDEEDAEDAEDEDCEDGEAAGARDADAGDEDEESEEPRAARPSSFQSRM   60
TGSRNWRATRDMCRYRHNYPDLVERDCNGDTPNLSFYRNEIRFLPNGCFIEDILQNWTDN  120
YDLLEDNHSYIQWLFPLREPGVNWHAKPLTLREVEVFKSSQEIQERLVRAYELMLGFYGI  180
RLEDRGTGTVGRAQNYQKRFQNLNWRSHNNLRITRILKSPCELSLEHFQAPLVRFFLEET  240
LVRRELPGVRQSALDYFMFAVRCRHQRRQLVHFAWEHFRPRCKFVWGPQDKLRRFKPSSL  300
PHPLEGSRKVEEEGSPGDPDHEASTQGRTCGPEHSKGGGRVDEGPQPRSVEPQDAGPLER  360
SQGDEAGGHGEDRPEPLSPKESKKRKLELSRREQPPTEPGPQSASEVEKIALNLEGCALS  420
QGSLRTGTQEVGGQDPGEASCPCCRGWGLRSCCGLPSGSAS                      461
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SEQ ID NO: 9 -- Human OGFr cDNA, spliced version 4

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   1  TAGAATTCAG CGGCCGCTGA ATTCTAGCCG AGCATGGACG ACCCCGACTG
  51  CGACTCCACC TGGGAGGAGG ACGAGGAGGA TGCGGAGGAC GCGGAGGACG
 101  AGGACTGCGA GGACGGCGAG GCCGCCGGCG CGAGGGACGC GGACGCAGGG
 151  GACGAGGACG AGGAGTCGGA GGAGCCGCGG GCGGCGCGGC CCAGCTCGTT
 201  CCAGTCCAGA ATGACAGGGT CCAGAAACTG GCGAGCCACG AGGGACATGT
 251  GTAGGTATCG GCACAACTAT CCGGATCTGG TGGAACGAGA CTGCAATGGG
 301  GACACGCCAA ACCTGAGTTT CTACAGAAAT GAGATCCGCT TCCTGCCCAA
 351  CGGCTGTTTC ATTGAGGACA TTCTTCAGAA CTGGACGGAC AACTATGACC
 401  TCCTTGAGGA CAATCACTCC TACATCCAGT GGCTGTTTCC TCTGCGAGAA
 451  CCAGGAGTGA ACTGGCATGC CAAGCCCCTC ACGCTCAGGG AGGTCGAGGT
 501  GTTTAAAAGC TCCCAGGAGA TCCAGGAGCG GCTTGTCCGG GCCTACGAGC
 551  TCATGCTGGG CTTCTACGGG ATCCGGCTGG AGGACCGAGG CACGGGCACG
 601  GTGGGCCGAG CACAGAACTA CCAGAAGCGC TTCCAGAACC TGAACTGGCG
 651  CAGCCACAAC AACCTCCGCA TCACACGCAT CCTCAAGTCG CCGTGTGAGC
 701  TGAGCCTCGA GCACTTCCAG GCGCCACTGG TCCGCTTCTT CCTGGAGGAG
 751  ACGCTGGTGC GGCGGGAGCT GCCGGGGGTG CGGCAGAGTG CCCTGGACTA
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 801  CTTCATGTTC GCCGTGCGCT GCCGACACCA GCGCCGCCAG CTGGTGCACT
 851  TCGCCTGGGA GCACTTCCGG CCCCGCTGCA AGTTCGTCTG GGGGCCCCAA
 901  GACAAGCTGC GGAGGTTCAA GCCCAGCTCT CTGCCGCATC CGCTCGAGGG
 951  CTCCAGGAAG GTGGAGGAGG AAGGAAGCCC CGGGGACCCC GACCACGAGG
1001  CCAGCACCCA GGGTCGGACC TGTGGGCCAG AGCATAGCAA GGGTGGGGGC
1051  AGGGTGGACG AGGGGCCCCA GCCACGGAGC GTGGAGCCCC AGGATGCGGG
1101  ACCCCTGGAG AGGAGCCAGG GGGATGAGGC AGGGGGCCAC GGGGAAGATA
1151  GGCCGGAGCC CTTAAGCCCC AAAGAGAGCA AGAAGAGGAA GCTGGAGCTG
1201  AGCCGGCGGG AGCAGCCGCC CACAGAGCCA GGCCCTCAGA GTGCCTCAGA
1251  GGTGGAGAAG ATCGCTCTGA ATTTGGAGGG GTGTGCCCTC AGCCAGGGCA
1301  GCCTCAGGAC GGGGACCCAG GAAGTGGGCG GTCAGGACCC TGGGGAGGCA
1351  GTGCAGCCCT GCCGCCAACC CCTGGGAGCC AGGGTGGCCG ACAAGGTGAG
1401  GAAGCGGAGG AAGGTGGATG AGGGTGCTGG GGACAGTGCT GCGGTGGCCA
1451  GTGGTGGTGC CCAGACCTTG GCCCTTGCCG GGTCCCCTGC CCCATCGGGG
1501  CACCCCAAGG CTGGACACAG TGAGAACGGG GTTGAGGAGG ACACAGAAGG
1551  TCGAACGGGG CCCAAAGAAG GTACCCCTGG GAGCCCATCG GAGACCCCAG
1601  GCCCCAGCCC AGCAGGACCT GCAGGGGACG AGCCAGCCGA GAGCCCATCG
1651  GAGACCCCAG GCCCCCGCCC AGCAGGACCT GCAGGGGACG AGCCAGCCGA
1701  GAGCCCATCG GAGACCCCAG GCCTCCGCCC GGCAGGACCT GCAGGGGACG
1751  AGCCAGCCGA GACCCCATCG GAGACCCCAG GCCCCAGCCC GGCAGGACCT
1801  ACAAGGGATG AGCCAGCCGA GAGCCCATCG GAGACCCCAG GCCCCCGCCC
1851  GGCAGGACCT GCAGGGGACG AGCCAGCCGA GAGCCCATCG GAGACCCCAG
1901  GCCCCCGCCC GGCAGGACCT GCAGGGGACG AACCAGCCGA GAGCCCATCG
1951  GAGACCCCAG GCCCCAGCCC GGCAGGACCT ACAAGGGATG AGCCAGCCAA
2001  GGCGGGGGAG GCAGCAGAGT TGCAGGACGC AGAGGTGGAG TCTTCTGCCA
2051  AGTCTGGGAA GCCTTAAGGA AAGGAGTGCC CGTCGGCGTC TTGGTCCTCC
2101  TGTCCCTGCT GCAGGGGCTG GGGCCTCCGG AGCTGCTGCG GACTCCCCTC
2151  AGGCTCTGCT TCGTGACCCG TGACCCATGA CCCACAGTGC TGGCCTCCTG
2201  TGGGGCCACT ATAGCAGCCA CCAGAAGCCG CGAGGCCCTC AGGGAAGCCC
2251  AAGGCCTGCA GAAGCCTCCT GGCCTGGCTG TGTCTTCCCC ACCCAGCTCT
2301  CCCCTGCGCC CCTGTCTTTG TAAATTGACC CTTCTGGAGT GGGGGGCG
```


Sub a1 cont.

SEQ ID NO: 10 -- Human OGFr, from spliced cDNA version 4

```
MDDPDCDSTWEEDEEDAEDAEDEDCEDGEAAGARDADAGDEDEESEEPRAARPSSFQSRM   60
TGSRNWRATRDMCRYRHNYPDLVERDCNGDTPNLSFYRNEIRFLPNGCFIEDILQNWTDN  120
YDLLEDNHSYIQWLFPLREPGVNWHAKPLTLREVEVFKSSQEIQERLVRAYELMLGFYGI  180
RLEDRGTGTVGRAQNYQKRFQNLNWRSHNNLRITRILKSPCELSLEHFQAPLVRFFLEET  240
LVRRELPGVRQSALDYFMFAVRCRHQRRQLVHFAWEHFRPRCKFVWGPQDKLRRFKPSSL  300
PHPLEGSRKVEEEGSPGDRDHEASTQGRTCGPEHSKGGGRVDEGPQPRSVEPQDAGPLER  360
SQGDEAGGHGEDRPEPLSPKESKKRKLELSRREQPPTEPGPQSASEVEKIALNLEGCALS  420
QGSLRTGTQEVGGQDPGEAVQPCRQPLGARVADKVRKRRKVDEGAGDSAAVASGGAQTLA  480
LAGSPAPSGHPKAGHSENGVEEDTEGRTGPKEGTPGSPSETPGPSPAGPAGDEPAESPSE  540
TPGPRPAGPAGDEPAESPSETPGLRPAGPAGDEPAETPSETPGPSPAGPTRDEPAESPSE  600
TPGPRPAGPAGDEPAESPSETPGPRPAGPAGDEPAESPSETPGPSPAGPTRDEPAKAGEA  660
AELQDAEVESSAKSGKP
```

SEQ ID NO: 11 -- Human OGFr cDNA, spliced version 7

```
     1  TAGAATTCAG CGGCCGCTGA ATTCTAGCCG AGCATGGACG ACCCCGACTG
    51  CGACTCCACC TGGGAGGAGG ACGAGGAGGA TGCGGAGGAC GCGGAGGACG
   101  AGGACTGCGA GGACGGCGAG GCCGCCGGCG CGAGGGACGC GGACGCAGGG
   151  GACGAGGACG AGGAGTCGGA GGAGCCGCGG GCGGCGCGGC CCAGCTCGTT
   201  CCAGTCCAGA ATGACAGGGT CCAGAAACTG GCGAGCCACG AGGGACATGT
   251  GTAGGTATCG GCACAACTAT CCGGATCTGG TGGAACGAGA CTGCAATGGG
   301  GACACGCCAA ACCTGAGTTT CTACAGAAAT GAGATCCGCT TCCTGCCCAA
   351  CGGCTGTTTC ATTGAGGACA TTCTTCAGAA CTGGACGGAC AACTATGACC
   401  TCCTTGAGGA CAATCACTCC TACATCCAGT GGCTGTTTCC TCTGCGAGAA
   451  CCAGGAGTGA ACTGGCATGC CAAGCCCCTC ACGCTCAGGG AGGTCGAGGT
   501  GTTTAAAAGC TCCCAGGAGA TCCAGGAGCG GCTTGTCCGG GCCTACGAGC
   551  TCATGCTGGG CTTCTACGGG ATCCGGCTGG AGGACCGAGG CACGGGCACG
   601  GTGGGCCGAG CACAGAACTA CCAGAAGCGC TTCCAGAACC TGAACTGGCG
   651  CAGCCACAAC AACCTCCGCA TCACACGCAT CCTCAAGTCG CCGTGTGAGC
```

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 701  TGAGCCTCGA GCACTTCCAG GCGCCACTGG TCCGCTTCTT CCTGGAGGAG
 751  ACGCTGGTGC GGCGGGAGCT GCCGGGGGTG CGGCAGAGTG CCCTGGACTA
 801  CTTCATGTTC GCCGTGCGCT GCCGACACCA GCGCCGCCAG CTGGTGCACT
 851  TCGCCTGGGA GCACTTCCGG CCCCGCTGCA AGTTCGTCTG GGGGCCCCAA
 901  GACAAGCTGC GGAGGTTCAA GCCCAGCTCT CTGCCCCATC CGCTCGAGGG
 951  CTCCAGGAAG GTGGAGGAGG AAGGAAGCCC CGGGGACCCC GACCACGAGG
1001  CCAGCACCCA GGGTCGGACC TGTGGGCCAG AGCATAGCAA GGGTGGGGGC
1051  AGGGTGGACG AGGGGCCCCA GCCACGGAGC GTGGAGCCCC AGGATGCGGG
1101  ACCCCTGGAG AGGAGCCAGG GGGATGAGGC AGGGGGCCAC GGGGAAGATA
1151  GGCCGGAGCC CTTAAGCCCC AAAGAGAGCA AGAAGAGGAA GCTGGAGCTG
1201  AGCCGGCGGG AGCAGCCGCC CACAGAGCCA GGCCCTCAGA GTGCCTCAGA
1251  GGTGGAGAAG ATCGCTCTGA ATTTGGAGGG GTGTGCCCTC AGCCAGGGCA
1301  GCCTCAGGAC GGGGACCCAG GAAGTGGGCG GTCAGGACCC TGGGGAGGCA
1351  GTGCAGCCCT GCCGCCAACC CCTGGGAGCC AGGGTGGCCG ACAAGGTGAG
1401  GAAGCGGAGG AAGGTGGATG AGGGTGCTGG GGACAGTGCT GCGGTGGCCA
1451  GTGGTGGTGC CCAGACCTTG GCCCTTGCCG GGTCCCCTGC CCCATCGGGG
1501  CACCCCAAGG CTGGACACAG TGAGAACGGG GTTGAGGAGG ACACAGAAGG
1551  TCGAACGGGG CCCAAAGAAG GTACCCCTGG GAGCCCATCG GAGACCCCAG
1601  GCCCCAGCCC AGCAGGACCT GCAGGGGACG AGCCAGCCGA GAGCCCATCG
1651  GAGACCCCAG GCCCCCGCCC GGCAGGACCT GCAGGGGACG AGCCAGCCGA
1701  GAGCCCATCG GAGACCCCAG GCCCCAGCCC GGCAGGACCT ACAAGGGATG
1751  AGCCAGCCGA GAGCCCATCG GAGACCCCAG GCCCCCGCCC GGCAGGACCT
1801  GCAGGGGACG AGCCAGCCGA GAGCCCATCG GAGACCCCAG GCCCCCGCCC
1851  GGCAGGACCT GCAGGGGACG AGCCAGCCGA GAGCCCATCG GAGACCCCAG
1901  GCCCCAGCCC GGCAGGACCT ACAAGGGATG AGCCAGCCAA GGCGGGGGAG
1951  GCAGCAGAGT TGCAGGACGC AGAGGTGGAG TCTTCTGCCA AGTCTGGGAA
2001  GCCTTAAGGA AAGGAGTGCC CGTCGGCGTC TTGGTCCTCC TGTCCCTGCT
2051  GCAGGGGCTG GGGCCTCCGG AGCTGCTGCG GGCTCCCCTC AGGCTCTGCT
2101  TCGTGACCCG TGACCCATGA CCCACAGTGC TGGCCTCCTG TGGGGCCACT
2151  ATAGCAGCCA CCAGAAGCCG CGAGGCCCTC AGGGAAGCCC AAGGCCTGCA
2201  GAAGCCTCCT GGCCTGGCTG TGTCTTCCCC ACCCAGCTCT CCCCTGCGCC
2251  CCTGTCTTTG TAAATTGACC CTTCTGGAGT GGGGGGCGG
```

Please add the following SEQ ID NO: a' cont

SEQ ID NO: 12, Human OGFr, from spliced cDNA version 7

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MDDPDCDSTWEEDEEDAEDAEDEDCEDGEAAGARDADAGDEDEESEEPRAARPSSFQSRM   60
TGSRNWRATRDMCRYRHNYPDLVERDCNGDTPNLSFYRNEIRFLPNGCFIEDILQNWTDN  120
YDLLEDNHSYIQWLFPLREPGVNWHAKPLTLREVEVFKSSQEIQERLVRAYELMLGFYGI  180
RLEDRGTGTVGRAQNYQKRFQNLNWRSHNNLRITRILKSPCELSLEHFQAPLVRFFLEET  240
LVRRELPGVRQSALDYFMFAVRCRHQRRQLVHFAWEHFRPRCKFVWGPQDKLRRFKPSSL  300
PHPLEGSRKVEEEGSPGDPDHEASTQGRTCGPEHSKGGGRVDEGPQPRSVEPQDAGPLER  360
SQGDEAGGHGEDRPEPLSPKESKKRKLELSRREQPPTEPGPQSASEVEKIALNLEGCALS  420
QGSLRTGTQEVGGQDPGEAVQPCRQPLGARVADKVRKRRKVDEGAGDSAAVASGGAQTLA  480
LAGSPAPSGHPKAGHSENGVEEDTEGRTGPKEGTPGSPSETPGPSPAGPAGDEPAESPSE  540
TPGPRPAGPAGDEPAESPSETPGPSPAGPTRDEPAESPSETPGPRPAGPAGDEPAESPSE  600
TPGPRPAGPAGDEPAESPSETPGPSPAGPTRDEPAKAGEAAELQDAEVESSAKSGKP     657
```

SEQ ID NO: 13 -- Human OGFr cDNA, spliced version 127

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   1  TAGAATTCAG CGGCCGCTGA ATTCTAGCCG AGCATGGACG ACCCCGACTG
  51  CGACTCCACC TGGGAGGAGG ACGAGGAGGA TGCGGAGGAC GCGGAGGACG
 101  AGGACTGCGA GGACGGCGAG GCCGCCGGCG CGAGGGACGC GGACGCAGGG
 151  GACGAGGACG AGGAGTCGGA GGAGCCGCGG GCGGCGCGGC CCAGCTCGTT
 201  CCAGTCCAGA ATGACAGGGT CCAGAAACTG GCGAGCCACG AGGGACATGT
 251  GTAGGTATCG GCACAACTAT CCGGATCTGG TGGAACGAGA CTGCAATGGG
 301  GACACGCCAA ACCTGAGTTT CTACAGAAAT GAGATCCGCT TCCTGCCCAA
 351  CGGCTGTTTC ATTGAGGACA TTCTTCAGAA CTGGACGGAC AACTATGACC
 401  TCCTTGAGGA CAATCACTCC TACATCCAGT GGCTGTTTCC TCTGCGAGAA
 451  CCAGGAGTGA ACTGGCATGC CAAGCCCCTC ACGCTCAGGG AGGTCGAGGT
 501  GTTTAAAAGC TCCCAGGAGA TCCAGGAGCG GCTTGTCCGG GCCTACGAGC
 551  TCATGCTGGG CTTCTACGGG ATCCGGCTGG AGGACCGAGG CACGGGCACG
 601  GTGGGCCGAG CACAGAACTA CCAGAAGCGC TTCCAGAACC TGAACTGGCG
 651  CAGCCACAAC AACCTCCGCA TCACACGCAT CCTCAAGTCG CCGTGTGAGC
```

```
 701  TGAGCCTCGA GCACTTCCAG GCGCCACTGG TCCGCTTCTT CCTGGAGGAG
 751  ACGCTGGTGC GGCGGGAGCT GCCGGGGGTG CGGCAGAGTG CCCTGGACTA
 801  CTTCATGTTC GCCGTGCGCT GCCGACACCA GCGCCGCCAG CTGGTGCACT
 851  TCGCCTGGGA GCACTTCCGG CCCCGCTGCA AGTTCGTCTG GGGGCCCCAA
 901  GACAAGCTGC GGAGGTTCAA GCCCAGCTCT CTGCCGCATC CGCTCGAGGG
 951  CTCCAGGAAG GTGGAGGAGG AAGGACCTGC AGGGGACGAG CCAGCCGAGA
1001  GCCCATCGGA GACCCCAGGC CCCAGCCCGG CAGGACCTAC AAGGGATGAG
1051  CCAGCCAAGG CGGGGGAGGC AGAAGCCTGC TGCCTGGCTG TGTCTTCCCA
1101  CCCAGCTCTC CCCTGCGCCC CTGTCTTTGT TAATCGACCC TTCTGGAGCG
1151  GGGGGCGGCG GGCAGGGCTT GCCTTTCTTA GTCTGATGCC AAGCAAGGCC
1201  TTTTCTGAAT AAATTCATTT GACTTTCGAA AA
```

SEQ ID NO: 14 -- Human OGFr, from spliced cDNA version 127

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MDDPDCDSTWEEDEEDAEDAEDEDCEDGEAAGARDADAGDEDEESEEPRAARPSSFQSRM   60
TGSRNWRATRDMCRYRHNYPDLVERDCNGDTPNLSFYRNEIRFLPNGCFIEDILQNWTDN  120
YDLLEDNHSYIQWLFPLREPGVNWHAKPLTLREVEVFKSSQEIQERLVRAYELMLGFYGI  180
RLEDRGTGTVGRAQNYQKRFQNLNWRSHNNLRITRILKSPCELSLEHFQAPLVRFFLEET  240
LVRRELPGVRQSALDYFMFAVRCRHQRRQLVHFAWEHFRPRCKFVWGPQDKLRRFKPSSL  300
PHPLEGSRKVEEEGPAGDEPAESPSETPGPSPAGPTRDEPAKAGEAEACCLAVSSHPALP  360
CAPVFVNRPFWSGGRRAGLAFLSLMPSKAFSE                               392
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